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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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PHILIPS INTELLECTUAL PROPERTY & STANDARDS
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EXAMINER

BREVAL, ELMITO

ART UNIT

PAPER NUMBER

2889

MAIL DATE

DELIVERY MODE

11/12/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/530,149	Applicant(s) BOERNER ET AL.	
	Examiner ELMITO BREVAL	Art Unit 2889	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 October 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/10/2008 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5, 6, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yazawa et al., (US. Pat: 5,804,918) of record by the examiner in view of Suntola et al., (US. Pat: 4,389,973).

Regarding claim 1, Yazawa ('918) teaches (in at least fig. 1) an electroluminescent display comprising a common substrate (1), and an array of electroluminescent devices (10) disposed on the common substrate (1), wherein each of said electroluminescent devices comprise an electroluminescent layer (6) which is sandwiched between a first and a second electrodes (4, 8), a color converting material

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which is capable of changing light emitted by the electroluminescent layer (6) into light having a longer wavelength (col. 4, lines 55-63) and a stack of $2n + 1$ transparent dielectric layers wherein $n = 0, 1, 2, 3, \dots$, (col. 4, lines 55-60) said transparent dielectric layers having a refractive index of $n > 1.7$ or a low refractive index of $n \leq 1.7$ (col. 3, lines 66- col. 4, lines 4) said transparent dielectric layers having a high refractive index n (col. 4, lines 55-60) being arranged in alternating manner with said transparent dielectric layer having a low refractive index n (col. 4, lines 55-60), said stack of $2n + 1$ transparent dielectric layers being arranged adjacent to one of the electrodes.

However, Yazawa ('918) does not teach a dielectric transparent layer having a high refractive index n adjoining the electrode.

Further regarding claim 1, Suntola ('973) teaches an electroluminescence device comprised of, in part, a transparent dielectric (102 of fig. 15; col. 11, lines 36-43) having a high refractive index n adjoining the electrode (101) for the purpose of having a dielectric layer with good light transparency.

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to contemplate of using the transparent dielectric layer of Suntola into the device of Yazawa for the purpose of having a dielectric layer with a good light transparency.

Regarding claim 2, Yazawa ('918) teaches the transparent dielectric layer having a refractive index $n > 1.7$ is selected from the group consisting of ZnS, TiO₂, and SnO₂ (col. 5, lines 10-22).

Regarding claim 3, Yazawa ('918) teaches the transparent dielectric layers having a refractive index $n \leq 1.7$ is selected from the group consisting of SO_2 (col. 4, lines 3-4).

Regarding claim 5, Yazawa ('918) teaches (in at least fig. 2) the electroluminescent device is an active matrix device having a pixelated first electrode (4).

Regarding claim 6, Yazawa ('918) teaches (in at least fig. 2) a capping layer (7) is placed adjacent to the second electrode (8) and wherein the color converter material is embedded in the capping layer (col. 5, lines 10-25).

Regarding claim 8, Yazawa ('918) teaches (in at least fig. 1) an electroluminescent device comprising an electroluminescent layer (6) which is sandwiched between a first and a second electrode (4, 8), a color converting material which is capable of changing light emitted by the electroluminescent layer (6) into light having a longer wavelength (col. 4, lines 55-63) and a stack of $2n + 1$ transparent dielectric layers wherein $n = 0, 1, 2, 3, \dots$, (col. 4, lines 55-60), said transparent dielectric layers having a high refractive index of $n > 1.7$ or a low refractive index of $n \leq 1.7$ (col. 3, lines 66-col.4, line 4), said transparent dielectric layers having a high refractive index n being arranged in alternating manner with said transparent dielectric layers having a low index n (col. 4, lines 55-60), said stack of $2n + 1$ transparent dielectric layers being arranged adjacent to one of the electrodes (4).

However, Yazawa ('918) does not teach a dielectric transparent layer having a high refractive index n adjoining the electrode.

Further regarding claim 8, Suntola ('973) teaches an electroluminescence device comprised of, in part, a transparent dielectric (102 of fig. 15; col. 11, lines 36-43) having a high refractive index n adjoining the electrode (101) for the purpose of having a dielectric layer with good light transparency.

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to contemplate of using the transparent dielectric layer of Suntola into the device of Yazawa for the purpose of having a dielectric layer with a good light transparency.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yazawa et al., (US. Pat: 5,804,918) of record by the examiner in view of Suntola et al., (US. Pat: 4,389,973) in further view of Leising et al., (US. Pat: 6,117,529) of record by the examiner.

Regarding claim 4, Yazawa/Suntola teach all the claimed limitations except for the transparent dielectric layers having a low refractive index is MgF_2 .

Further regarding claim 4, Leising ('529) in the same field of endeavor teaches an organic electroluminescent device comprised of, in part, a low refractive transparent dielectric layer made of MgF_2 (col. 5, line 64) for the purpose of improving the luminance efficiency of the device.

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the dielectric material of Leising into the device of Yazawa for the purpose of improving the luminance efficiency of the device.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yazawa et al., (US. Pat: 5,804,918) of record by the examiner and Suntola et al., (US. Pat: 4,389,973) in view of Shimizu (US. Pat: 5,003,221) of record by the examiner.

Regarding claim 7, Yazawa/Suntola teach all the claimed limitations except for the color converting material is selected from the group consisting of (B, Sr)₂SiO₄:Eu, SrGa₂S₄:Eu, CaS:Ce, Ba₂ZnS₃:Ce, K, Lumogen yellow ED206, (Sr,Ca)₂SiO₄:Eu, (Y,Gd)₃(Al, Ga)₅O₁₂:Ce, Y₃Al₅O₁₂:Ce, Lumogen F orange 240, SrGA₂S₄:Pb, Sr₂Si₅N₈:Eu, SrS:Eu, Lumogen F red 300, Ba₂Si₅N₈:Eu, Ca₂Si₅N₈:Eu, CaSiN₂:Eu and CaS:Eu.

Further regarding claim 7, Shimizu ('221) in the same field of endeavor teaches an organic electroluminescent device comprised of, in part, color converting materials wherein the color converting materials is selected from the group consisting of CaS: Ce and SrS:Eu (col. 15, lines 8-10) for the purpose of improving the luminance efficiency of the device.

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the color converting materials of Shimuzu into the device of Yazawa for the purpose of improving the luminance efficiency of the device.

Claim 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yazawa et al., (US. Pat: 5,804,918) of record by the examiner in view of Suntola et al., (US. Pat: 4,389,973) in further view of Tang et al., (US. Pat: 5,294,870) of record by the examiner.

Regarding claims 9 and 12, Yazawa/Suntola teach all the claimed limitations except for the color converting material is configured to convert blue light to at least one of red and green light.

Further regarding claim 9, Tang ('870) in the same field of endeavor teaches an electroluminescent device, comprised of, in part, a color converting material configured to convert blue light to at least one of red and green light (col. 8, lines 15-22) for the purpose of emitting red and green light.

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the color converting material of Tang into the device of Yazawa for the purpose of emitting red and green light.

Regarding claims 10 and 13, Yazawa/Suntola teach all the claimed limitations except for the blue light passes through the electroluminescent device substantially without loss.

Further regarding claim 10, Tang ('870) teaches an electroluminescent lamp comprised of, in part, a blue color converting material wherein the blue light passes through the electroluminescent device substantially without loss (col. 8, lines 54-56) for the purpose of emitting a blue light without any shift in color.

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the blue light converting material of Tang into the device of Yazawa for the purpose of emitting a blue light without any shift in color.

Regarding claims 11 and 14, Yazawa/Suntola teach all the claimed limitations except for the color converting material is configured to convert blue light to red light for

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a first sub-pixel, and to convert the blue light to green light for a second sub-pixel, and wherein the blue light passes through the electroluminescent device substantially without loss for a third sub-pixel.

Further regarding claims 11 and 14, Tang ('870) teaches an electroluminescent device comprised of, in part, a color converting material wherein the color converting material is configured to convert blue light to red light for a first sub-pixel, and to convert the blue light to green light for a second sub-pixel, and wherein the blue light passes through the electroluminescent device substantially without loss for a third sub-pixel (col. 8, lines 8-68) for the purpose of having good luminance efficiency of the device.

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the color converting material as taught by Tang into the device of Yazawa for the purpose of improving the luminance efficiency of the device.

Response to Arguments

Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Mizukami et al., (US. Pat: 4,188,565), Wedding et al., (US. Pat: 4,494,038), Lee et al., (US. Pub: 2003/0117071), and Dickey et al., (US. Pat: 6,358,632).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELMITO BREVAL whose telephone number is (571)270-3099. The examiner can normally be reached on M-F (8:30 AM-5:00 Pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Toan Ton can be reached on (571)-272-2303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

November 10, 2008
/Elmito Breval/
Examiner, Art Unit 2889

/Joseph L. Williams/
Primary Examiner, Art Unit 2889